3-6-02 10/070646

JC20 Rec'd PCT/PTO 05 MAR 2002

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Attorney Docket Number: 13016

PATENTS

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

International Application Number: PCT/DE00/03051

International Filing Date: 05 September 2000

Priority Date Claimed: 9 June 1999

Title of Invention: TAP INSERT

Applicant(s) for DO/EO/US: BROMBACH, Frank

Applicant herewith submits to the Unites States Designed/Elected Office (DO/EO/US) the following items under 35 U.S.C. 371:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to immediately begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the international Application as filed (35 U.S.C. 371(c)(2)):
   a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English
7. ☐ Amendments to the claims of the International Application under PCT Article 19:
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has **NOT** expired.
   d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19(35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)):
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☒ will follow.
10. ☐ A translation of the Annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
11. ☒ Copy of the:
   a. ☒ International Preliminary Examination Report.
   b. ☒ International Search Report.
12. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
13. ☒ An Assignment document for recording with a separate cover sheet in compliance with 37 CFR 3.28 and 3.31:
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☒ will follow.
14. ☒ A **FIRST** preliminary amendment.
15. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
16. ☐ A substitute specification.
17. ☐ A change of power of attorney and/or address letter.
18. ☒ Applicant claims Small Entity status

19. ☐ Other items of information: .....

20. ☒ 6 Sheets of drawings are enclosed.

21. ☒ The U.S. National Fee (35 U.S.C. 371(c)(1)) and other fees as follows:

	NATIONAL FEE (37 CFR 1.492):	***TOTAL***
☐	Search Report has been prepared by the EPO or JPO (37CFR 1.492 (a)(5))	$890
☐	International Preliminary Examination fee paid to USPTO (37 CFR 1.492(a)(1))	$710
☐	No International Preliminary examination fee paid to USPTO but international search fee paid to USPTO (37 CFR 1.492(a)(2))	$740
☑	Neither International Preliminary examination fee nor International Search fee (37CFR 1.492(a)(3)) paid to USPTO	$1,040
☐	International Preliminary Examination fee paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)(37 CFR 1.492 (a)(4))	$100
☐	Surcharge for furnishing the oath of declaration later than **20 or 30** months from the earliest claimed priority date (37 CFR 1.492(e))	$130
☐	Processing fee for furnishing the English translation later than the **20 or 30** months from the earliest claimed priority date (37 CFR 1.492(f))	$130
☐	Assignment Recordal Sheet (37 CFR 1.21(L))	$40

	Number of Claims Filed	**Number of Claims Allowed**	**Number of Extra Claims**	**Rate per Extra Claim**	
Total Number of Claims Filed	18	20	0	$18	$0
Number of Independent Claims Filed	1	3	0	$80	$0

		Yes	**No**	**Rate per Application**	
Number of Multiple Dependent Claims Filed	**0**			$270	$0

Total Fees Enclosed for Large Entity	$1,040
Total Fees Enclosed for Small Entity (1/2 of Large Entity)	$520

a. ☒ A check in the amount of $ 520 to cover the fee is enclosed.
b. ☐ Please charge my deposit account $ 0 to cover the above fees. A duplicate copy of this sheet is enclosed.
c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, including request for extension and payment of extension fees due, when this is not explicitly requested by applicants, with a view toward avoidance of abandonment, to Deposit account No. 04-2219, referencing our docket # **13016**. Any overpayment should be credited to this account.

Please direct all communication in connection with this application to the undersigned at:

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CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this transmittal letter and the documents referred to as enclosed therein are being deposited with the United States Postal Service on March 5, 2002, in an envelope as "Express Mail Post Office Addressee", mailing label number EV034971795US addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Brenda Campillo
Name of Person Mailing Paper

Signature of Person Mailing Paper

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: BROMBACH, Frank

Serial Number: 10/070646

PCT Application Number: PCT/DE00/03051

International Filing Date: 05 September 2000

Title: TAP INSERT

Attorney Docket Number: 13016

TRANSLATION OF PRELIMINARY AMENDMENT

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

March 5, 2002

Sir:

Please amend the newly submitted application described above as follows:

In the Claims:

A version with markings to show changes made is attached. A copy of the claims as amended is attached.

Please add the following claims:

10. Tap insert as defined in Claim 2, characterized in that the shut-off body housing (26) consists of a sealing material.

11. Tap insert as defined in Claim 2, characterized in that the shut-off body housing (8, 18) consists of metal or plastic material and that a seal (11) is provided on the shut-off body housing.

12. Tap insert as defined in Claim 4, characterized in that the seal is of Teflon.

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March 5, 2002

13. Tap insert as defined in Claim 2, characterized in that the shut-off body is a cone or a cylinder.

14. Tap insert as defined in Claim 3, characterized in that the shut-off body is a cone or a cylinder.

15. Tap insert as defined in Claim 4, characterized in that the shut-off body is a cone or a cylinder.

16. Tap insert as defined in Claim 5, characterized in that the shut-off body is a cone or a cylinder.

17. Tap insert as defined in Claim 6, characterized in that the shut-off body is a cone or a cylinder.

18. Tap insert as defined in Claim 7, characterized in that the shut-off body is a cone or a cylinder.

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Version with Markings to Show Changes Made

3. Tap insert as defined in Claim 1 [or 2], characterized in that the shut-off body housing (26) consists of a sealing material.

4. Tap insert as defined in Claim 1 [or 2], characterized in that the shut-off body housing (8, 18) consists of metal or plastic material and that a seal (11) is provided on the shut-off body housing.

5. Tap insert as defined in Claim 3 [or 4], characterized in that the seal consists of Teflon.

9. Tap insert as defined in [any of the Claims 1 to 7] Claim 1, characterized in that the shut-off body is a cone or a cylinder.

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Claims as Amended

3. Tap insert as defined in Claim 1, characterized in that the shut-off body housing (26) consists of a sealing material.

4. Tap insert as defined in Claim 1, characterized in that the shut-off body housing (8, 18) consists of metal or plastic material and that a seal (11) is provided on the shut-off body housing.

5. Tap insert as defined in Claim 3, characterized in that the seal consists of Teflon.

9. Tap insert as defined in Claim 1, characterized in that the shut-off body is a cone or a cylinder.

US Patent Application
Based on: PCT/DE00/03051
13016

March 5, 2002

REMARKS

The foregoing amendments are primarily for the purpose of eliminating multiple dependencies, and placing the claims in proper form.

Respectfully submitted,

/s/_____

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: BROMBACH, Frank

Serial Number: 10/070646

PCT Application Number: PCT/DE00/03051

International Filing Date: 05 September 2000

Title: TAP INSERT

Attorney Docket Number: 13016

SECOND PRELIMINARY AMENDMENT

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

October 21, 2002

Sir:

Please amend the application described above as follows:

In the Claims:

Please cancel claims 1-11 and 14-18. Please amend claims 12 and 13. Please add the following new claims. A version with markings to show changes made and claims as amended is attached.

Version With Markings To Show Changes Made

12. A tap [Tap] insert as defined in claim 22 [4], [characterized in that] wherein the seal is Teflon.

13. A tap [Tap] insert as defined in Claim 19 [2], [characterized in that] wherein the shut-off body is a cone or cylinder.

19. Tap insert for closing or separating conduits which can be installed in a valve housing connected with a conduit, comprising:

a device for connecting a tap insert with the valve housing, said connecting device having an external thread on an outside surface which can be screwed into the valve housing;

a stop body rotably disposed in the device, said stop body provided with a through channel;

an actuating device for rotating the stop body; and

a shut-off body housing surrounding the shut-off body, the shut-off body housing closing the through channel when in a closed position, the shut-off body housing provided with shut-off surfaces on its exterior that lie on a valve seat of the valve housing.

20. A tap insert as defined in Claim 19, wherein the shut-off body housing comprising a sealing material.

21. A tap insert as defined in Claim 20, wherein the sealing material is Teflon.

22. A tap insert as defined in Claim 19, wherein the shut-off body housing comprises metal or plastic; and a seal is provided on the shut-off body housing.

23. A tap insert as defined in Claim 19, wherein the shut-off body housing consists of two parts that are held together by a sleeve that encloses at least a portion of both parts.

24. A tap insert as defined in Claim 23, wherein the two parts of the shut-off body housing are comprised of Teflon and the sleeve is comprised of brass.

25. A tap insert as defined in Claim 23, wherein the shut-off body is a ball, cone or cylinder.

26. A tap insert as defined in Claim 23, wherein the shut-off body housing comprises a sealing material.

27. A tap insert as defined in Claim 23, wherein the shut-off body housing comprises metal or plastic and a seal is provided on the shut-off body housing.

28. A tap insert as defined in Claim 19, wherein the shut-off body is a ball.

29. A tap insert as defined in Claim 19, further comprising:

a first sleeve, said first sleeve guided in the connecting device so as to adjust the length of the tap insert; and

a second sleeve that has a thread and fits on the first sleeve, said second sleeve is located on an end of the connecting device distal from the valve housing.

30. A tap insert as defined in Claim 29, wherein the shut-off body is a ball, cone or a cylinder.

31. A tap insert as defined in Claim 29, wherein the shut-off body housing comprises a sealing material.

32. A tap insert as defined in Claim 29, wherein the shut-off body housing comprises metal or plastic and a seal is provided on the shut-off body housing.

33. A tap insert as defined in Claim 19, further comprising:

a device for connecting a tap insert with the valve housing, said connecting device having an external thread on an outside surface which can be screwed into the valve housing;

a stop body rotably disposed in the device, said stop body provided with a through channel;

an actuating device for rotating the stop body;

a shut-off body housing surrounding the shut-off body, the shut-off body housing closing the through channel when in a closed position, the shut-off body

housing provided with shut-off surfaces on its exterior that lie on a valve seat of the valve housing;

a first sleeve, said first sleeve guided in the connecting device so as to adjust the length with the tap insert; and

a second sleeve that has a thread and fits on the first sleeve, said second sleeve is located on an end of the connecting device distal from the valve housing;

wherein said shut-off body is a ball, cone or cylinder.

34. A tap insert as defined in Claim 35, wherein the shut-off body housing comprises a sealing material.

35. A tap insert as defined in Claim 35, wherein the shut-off body housing comprises metal or plastic and a seal is provided on the shut-off body housing.

CLAIMS AS AMENDED

12. A tap insert as defined in claim 22, wherein the seal is Teflon.

13. A tap insert as defined in Claim 19, wherein the shut-off body is a cone or cylinder.

19. Tap insert for closing or separating conduits which can be installed in a valve housing connected with a conduit, comprising:

a device for connecting a tap insert with the valve housing, said connecting device having an external thread on an outside surface which can be screwed into the valve housing;

a stop body rotably disposed in the device, said stop body provided with a through channel;

an actuating device for rotating the stop body; and

a shut-off body housing surrounding the shut-off body, the shut-off body housing closing the through channel when in a closed position, the shut-off body housing provided with shut-off surfaces on its exterior that lie on a valve seat of the valve housing.

20. A tap insert as defined in Claim 19, wherein the shut-off body housing comprising a sealing material.

21. A tap insert as defined in Claim 20, wherein the sealing material is Teflon.

22. A tap insert as defined in Claim 19, wherein the shut-off body housing comprises metal or plastic; and a seal is provided on the shut-off body housing.

23. A tap insert as defined in Claim 19, wherein the shut-off body housing consists of two parts that are held together by a sleeve that encloses at least a portion of both parts.

24. A tap insert as defined in Claim 23, wherein the two parts of the shut-off body housing are comprised of Teflon and the sleeve is comprised of brass.

25. A tap insert as defined in Claim 23, wherein the shut-off body is a ball, cone or cylinder.

26. A tap insert as defined in Claim 23, wherein the shut-off body housing comprises a sealing material.

27. A tap insert as defined in Claim 23, wherein the shut-off body housing comprises metal or plastic and a seal is provided on the shut-off body housing.

28. A tap insert as defined in Claim 19, wherein the shut-off body is a ball.

29. A tap insert as defined in Claim 19, further comprising:

a first sleeve, said first sleeve guided in the connecting device so as to adjust the length of the tap insert; and

a second sleeve that has a thread and fits on the first sleeve, said second sleeve is located on an end of the connecting device distal from the valve housing.

30. A tap insert as defined in Claim 29, wherein the shut-off body is a ball, cone or a cylinder.

31. A tap insert as defined in Claim 29, wherein the shut-off body housing comprises a sealing material.

32. A tap insert as defined in Claim 29, wherein the shut-off body housing comprises metal or plastic and a seal is provided on the shut-off body housing.

33. A tap insert as defined in Claim 19, further comprising:

a device for connecting a tap insert with the valve housing, said connecting device having an external thread on an outside surface which can be screwed into the valve housing;

a stop body rotably disposed in the device, said stop body provided with a through channel;

an actuating device for rotating the stop body;

a shut-off body housing surrounding the shut-off body, the shut-off body housing closing the through channel when in a closed position, the shut-off body

housing provided with shut-off surfaces on its exterior that lie on a valve seat of the valve housing;

a first sleeve, said first sleeve guided in the connecting device so as to adjust the length with the tap insert; and

a second sleeve that has a thread and fits on the first sleeve, said second sleeve is located on an end of the connecting device distal from the valve housing;

wherein said shut-off body is a ball, cone or cylinder.

34. A tap insert as defined in Claim 35, wherein the shut-off body housing comprises a sealing material.

35. A tap insert as defined in Claim 35, wherein the shut-off body housing comprises metal or plastic and a seal is provided on the shut-off body housing.

REMARKS

Claims 12, 13 and 19-35 are pending in the application. The foregoing amendments are primarily for the purpose of placing the claims in proper form.

Respectfully submitted,

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CERTIFICATE OF MAILING BY "FIRST CLASS MAIL"

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on October 21, 2002.

Christopher Johnsen

WO 01/18437 PCT/DE00/03051

Tap Insert

The present invention relates to a tap insert that is used to close or separate conduits, as defined in the preamble to Patent Claim 1.

Very frequently, manually operated shut-off valves are used in the distribution network of a water supply system, a heating system, or a solar heating system , for example in buildings or on building sites. These shut off valves have a handwheel, by means of which a valve head with a seal is displaced rectilinearly and perpendicularly to a valve seat in the conduit. One disadvantage of such shut off valves is that they are extremely vulnerable to wear. The number of turns that have to be completed by the handwheel in order that the valve head is sealed against the valve seat is not fixed. These means that the valve can be tightened down so hard that the valve head seal becomes damaged, with the result that the valve no longer seals the conduit off as it should. The valve is particularly vulnerable to wear should the valve remain unopened for a protracted period of time, or should high water temperatures occur. This means that the valve inserts that are used in valve housings associated with the conduits have to be replaced very frequently. If a number of shut off valves is defective in a building or on a building site, then the water will have to be drained off from part of the water supply network in order to replace the valve inserts. This entails considerable outlays of time and money.

In order to avoid these disadvantages, in many cases valves–in particular ball valves–are used in place of shut off valves in new buildings. These have a spherical or conical shut off body that incorporates a through channel, and the shut off body can be rotated through a predetermined angle, in most instances through 90°, by a lever. Taps of this kind are not

prone to wear, but they do entail the disadvantage that they can be installed in existing conduits that already incorporate a shut off valve only at great cost. To this end, very frequently a whole section of conduit has to be removed. This is a serious disadvantage in the case of conduits that are routed through masonry.

In contrast to this, the tap insert having the characteristic features set out in Patent Claim 1 entails the advantage that it can be screwed into a valve housing. To this end, there is an outside thread on the outside of the device to connect the tap insert to the housing. All that need be done to replace a valve insert with a tap insert of this kind is to screw the valve insert out of the conduit and then screw the tap insert into the existing receptacle. The valve body housing that encloses the shut off body of the tap insert has stop surfaces on its exterior, and these rest on the valve seat of the valve housing, which is provided for the valve head of a valve insert, so as to form a seal. If the shut off valve is in the closed position, the conduit is completely closed in the area of the tap insert. If the shut off body is in the open position, then the medium that is being conducted through the conduit can flow through the openings provided in the shut off valve housing and the through passageway in the shut off body. The conduit is thus opened in the area of the tap insert.

The tap insert is suitable–for instance–for Y-valves, free-flow valves, and straight-way valves. To this end, in each instance the shut off valve housing must be matched to the valve seat and the distance between the shut off valve housing and the connecting device must be matched to the particular valve body.

According to one advantageous configuration of the present invention, the shut off body housing is of a sealing material. This means that the shut off body housing serves to close

the through channel in the shut off body when in the closed position, to guide the shut off body in the shut off body housing, and seal the tap insert against the egress of liquid. In addition, the transition between the shut off body housing and the valve seat of the valve housing is also sealed. A separate seal is not needed in this case. Because of the fact that the shut off body has a smooth surface, and the sealing material is elastic, the shut off body can be guided in the shut off body without any frictional losses and thus without wearing. More advantageously, material that possesses good sealing properties, and within which the shut off body can be guided with very little friction, is selected for the seal. Teflon is particularly suitable for this purpose. In most instances, the shut off body is of metal, for example, stainless steel, brass, or bronze, and has a polished surface.

According to another advantageous version of the present invention, the shut off body housing can be of metal or plastic. In this case, a seal will also be required between the shut off body and the shut off body housing, on the one hand, and between the shut off body housing and the valve seat, on the other.

According to another advantageous version of the present invention, the shut off body housing consists of two parts that are held together by a sleeve that encloses both parts from the outside, at least in part. In order to assemble the individual parts to form a tap insert, the two parts are positioned around the shut off body and fixed on the shut off body by the sleeve. These two parts have an inside shape that is matched to the shape of the shut off body. When assembled, the tap insert can be inserted into a valve housing as a complete unit. Because of its compact construction, the shut off valve housing is of a compact installed size and for this reason can be inserted into a valve housing that provides only a small installation depth.

It is preferred that the two parts of the shut off valve housing be of Teflon, and the sleeve be of brass. Other materials are also possible.

According to another advantageous configuration of the present invention, a ball is used as the shut off body. In addition, the shut off body can be in the form of a cone or of a cylinder.

According to another advantageous configuration of the present invention, the length of the tap insert can be adjusted. This makes it possible to adjust the tap insert to the housing and with respect to the space between the valve seat and the thread that is used to screw the tap insert into place. Thus, the tap insert is extremely versatile and can be matched to each valve housing in an optimal manner. The length of the tap insert is adjusted and fixed when it is inserted into the valve housing. This length is not changed as long as the tap insert remains within the valve housing. The tap insert differs from a valve insert in this respect. In the latter, the space between the valve head and the thread that connects the valve insert with the valve housing changes each time the valve is opened or closed.

For example, a first sleeve that is guided in the connecting device can be provided to provide for length adjustment. A pin extends through this sleeve; at one end of this pin there is the shut off body and at the other end of the pin there is an actuating device. A second sleeve acts on the first sleeve and this is guided, on the end that extends from the valve housing, by a thread on the outside of the connecting device. The position of the first sleeve in the connecting device and thus the distance between the shut off housing and the

connecting device can be varied by adjusting the position of the second sleeve on the connecting device.

Additional advantages and configurations of the present invention are set out in the description, the drawings, and the claims that follow.

Figure 1: Valve housing with tap insert according to a first embodiment;

Figure 2: Valve housing with tap insert according to a second embodiment;

Figure 3: Tap insert in cross-section (third embodiment);

Figure 4: Ball with ball pin of the tap insert as shown in Figure 3;

Figure 5: Shut off body housing of the tap insert as shown in Figure 3;

Figure 6: Connecting device with the valve housing for the tap insert shown in Figure 3;

Figure 7: First sleeve of the tap insert as shown in Figure 3;

Figure 8: Second sleeve of the tap insert as shown in Figure 3;

Figure 9: A fourth embodiment of the tap insert, in cross section.

Figure 1 shows a valve housing 1 with a tap insert 2, in cross-section. The valve housing 1 has connectors 3 and 4 at its ends , and these are used to provide a connection with a conduit. In addition, there is a receptacle 5 that has an inside thread (not shown in the drawing) into which a valve insert is usually screwed. A valve seat 6 is provided on the valve housing 1 for a valve head of a valve insert. In place of the valve insert, a tap insert 2 is installed in the valve housing. The tap insert 2 consists essentially of a device 7 that connects the tap insert to the valve housing 1, a shut off body 8, and a shut off body housing 9. The shut off body is of a cylindrical shape and has at the side and in the axial direction a circular opening 10 for the through channel. There is a seal 11 between the shut

off body 8 and the shut off body housing 9. On the outside of the connecting device there is an outside thread 12. A pin 13 is provided on the cylindrical shut off body, and a lever can be attached to this at the end that is remote from the shut off body in order that the tap insert can be operated by hand. The shut off body housing 9 is seated on the valve seat 6 so as to form a seal. To this end, an additional seal (not shown herein) can be provided between the shut off body housing and the valve seat. Inlet and outlet openings 14 and 15 are provided in the shut off body housing 9 through which the medium that is routed through the valve housing 1 when the shut off body is in the open position can flow through the tap. If, however, the shut off body is in the closed position, the conduit is tightly closed by the tap insert 2. For this reason, the medium cannot then pass through the tap.

In Figure 2, another embodiment of the tap insert 16 is shown in a valve housing 17. This embodiment differs from the first embodiment shown in Figure 1 in that the distance between the shut off body housing 18 and device 19 for providing a connection to the valve housing 17 is greater. All the other parts are the same as those shown in Figure 1. The tap insert can be so configured that its length can be adapted to different valve housings. To this end, a part 20 that extends from the valve housing 17 can be changed relative to its distance from the shut off body housing.

Figure 3 shows a third embodiment of a tap insert 21 in cross section. The device 22 that connects the tap insert to the valve housings has an outside thread 23 on its exterior. The shut off body consists of a ball 24 that incorporates a through channel 25. The shut off body housing 26 is of a cylindrical shape and comprises two parts 27 and 28 that enclose the ball 24 like a shell. Both of these parts are of Teflon and thus serve to guide the ball, act as a seal, and close the through channel when in the closed position. Openings 29 and 30 that are matched to the through channel 25 are provided in both parts 27 and 28; when

the shut off body is in the open position these permit the medium to flow through the tap insert. A ball pin 31 to which a lever can be attached at the end that is remote from the ball is provided so that the ball can be operated manually. The ball pin 31 is guided in a first sleeve 32. The sleeve extends within the device 22. Grooves 33 for sliding rings are provided on the outside of the first sleeve. A second sleeve 34 fits on the first sleeve at the end of the first sleeve 32 that is remote from the ball. The second sleeve is guided by a fine thread 35 on the outside of the connecting device 22. The first sleeve is displaced within the device 22 by screwing the second sleeve 34 onto the device 22. This changes the distance between the shut off body housing 26 and the device 22. In this way, the length of the tap insert 21 can be changed and adapted to different valve housings with respect to the distance between the receptacle of the insert and the valve seat. In order to install the tap insert 21 in a valve housing, the distance between the shut off body housing 26 and the device 22 is first minimized. Then the tap insert 21 is screwed into the valve housing by the outside thread 23. Finally, the second sleeve 34 is screwed onto the device 22 until the shut off body housing 26 is seated on the valve seat of the valve housing. The adjustment of the second sleeve 34 is not changed for as long as the tap insert is installed.
The individual parts of the tap insert 21 are shown in Figure 4 to Figure 8.

In Figure 9, a fourth embodiment of the tap insert 36 is shown in a cross section. This tap insert is essentially the same as the tap insert shown in Figure 3. Unlike the tap insert shown in Figure 3, in this embodiment the shut off body housing consists of two smaller parts 38 and 39 that are held together by a sleeve 40. Thus, the shut off body housing 37 is only slightly larger than the diameter of the ball-shaped shut off body 41. Thus, the tap insert is relatively small when installed, and can be used in short valve housings.

All of the features set out in the description, in the claims that follow, and in the drawings appended hereto are essential to the present invention, either singly or in any combination with each other.

Amended Claims

1. Tap insert used to close or separate conduits, which can be installed in a housing that is connected to the conduit, with a device (7, 19, 22) to connect the tap insert to the housing, with a shut off body (8, 24) that is supported in the device (7, 19, 22) so as to be able to rotate and which is provided with a through channel (25), with an actuating device that is used to turn the shut off body, with a shut off body housing (9,18, 26) that surrounds the shut off body (8, 24) and which closes the through channel (25) when in the closed position, with an outside thread (19, 23) on the connecting device (7, 19, 22) that can be screwed into the valve housing, characterized in that the tap insert can be inserted into a valve housing (1, 17) for valve inserts with a valve head; in that the shut off body housing (9, 18, 26) has stop surfaces on its exterior that lie on the valve seat (6) of the valve housing (1, 17) that is provided for the valve head of a valve insert.

2. Tap insert as defined in Claim 1, characterized in that the shut off body housing (26) is of a sealing material.

3. Tap insert as defined in Claim 1, characterized in that the shut off body housing (8, 18) is of metal or plastic; and in that a seal (11) is provided on the shut off body housing.

4. Tap insert as defined in Claim 2 or Claim 3 , characterized in that the seal is of Teflon.

5. Tap insert as defined in one of the preceding claims, characterized in that the shut off body housing (37) consists of two parts (38, 39) that are held together by a sleeve (40) that encloses both paths from the outside, at least in part.

6. Tap insert as defined in Claim 5, characterized in that the two parts (38, 39) of the shut off body housing (37) are of Teflon and the sleeve (40) is of brass.

7. Tap insert as defined in one of the preceding claims, characterized in that a ball (24) is provided as the shut off body.

8. Tap insert as defined in one of the Claims 1 to 6, characterized in that a cone or a cylinder is provided as the shut off body.

9. Tap insert as defined in one of the preceding Claims, characterized in that a first sleeve (32) is guided in the device (22) for connecting the tap insert (21) to the valve housing so as to adjust the length of the tap insert; and in that on the end of the connecting device (22) that extends from the valve housing there is a second sleeve (34) that has a thread (35) and fits on the first sleeve.

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Parts List & Reference Numbers

1 Valve housing

2 Tap insert

3 Connector

4 Connector

5 Receptacle

6 Valve seat

7 Connecting device

8 Shut off body

9 Shut off body housing

10 Opening of the through channel

11 Seal

12 Outside thread

13 Pin

14 Inlet or outlet opening

15 Inlet or outlet opening

16 Tap insert

17 Valve housing

18 Shut off body housing

19 Connecting device

20 Part of the tap insert

21 Tap insert

22 Connecting device

23 Outside thread

24 Ball

25 Through channel

26 Shut off body housing

27 Part of shut off body housing

28 Part of shut off body housing

29 Opening

30 Opening

31 Ball pin

32 First sleeve

33 Groove

34 Second sleeve

35 Fine thread

36 Tap insert

37 Shut off body housing

38 Part of shut off body housing

39 Part of shut off body housing

40 Sleeve

41 Shut off body

ABSTRACT

The invention relates to a tap insert which is used for closing or separating conduits and can be introduced into a valve housing (1, 17) for valve inserts. An external thread (12, 23) is provided at the outside of the tap insert (2, 16, 21). The insert can be screwed in a receptacle (5) of a valve housing (1, 17) by means of said thread, whereby the receptacle is provided for valve inserts.

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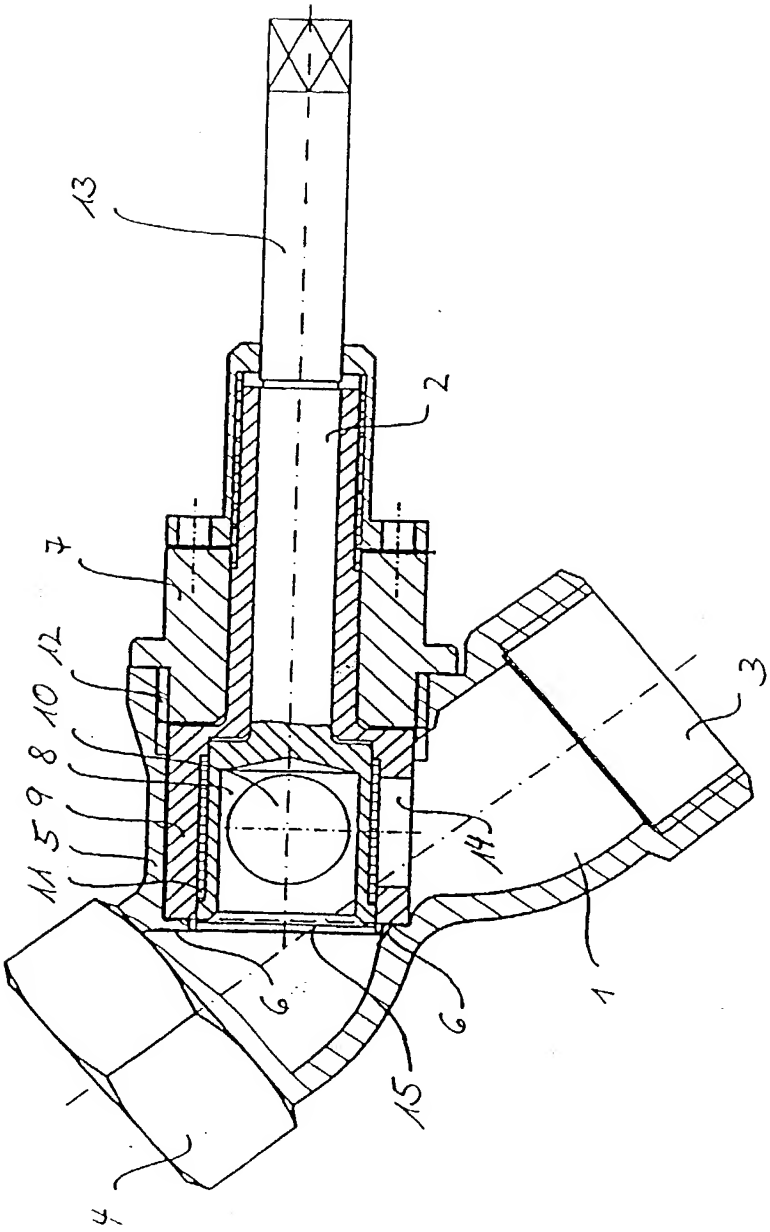

Fig. 1

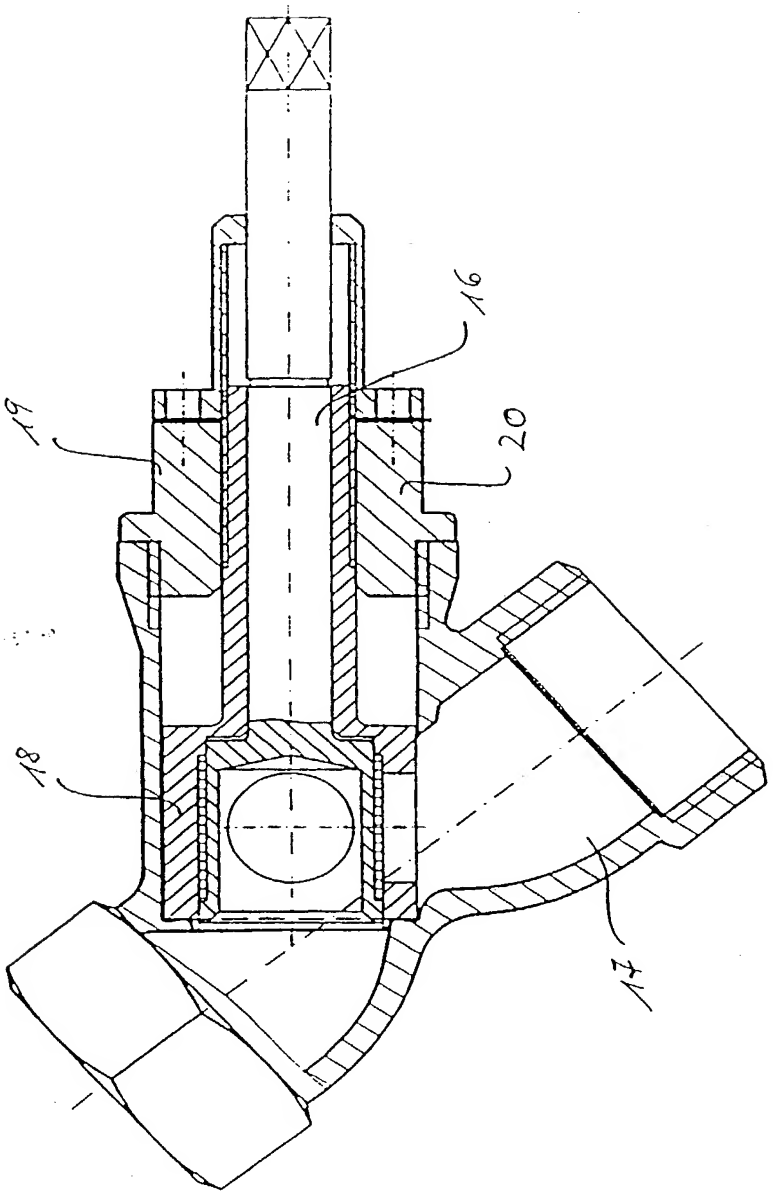

Fig. 2

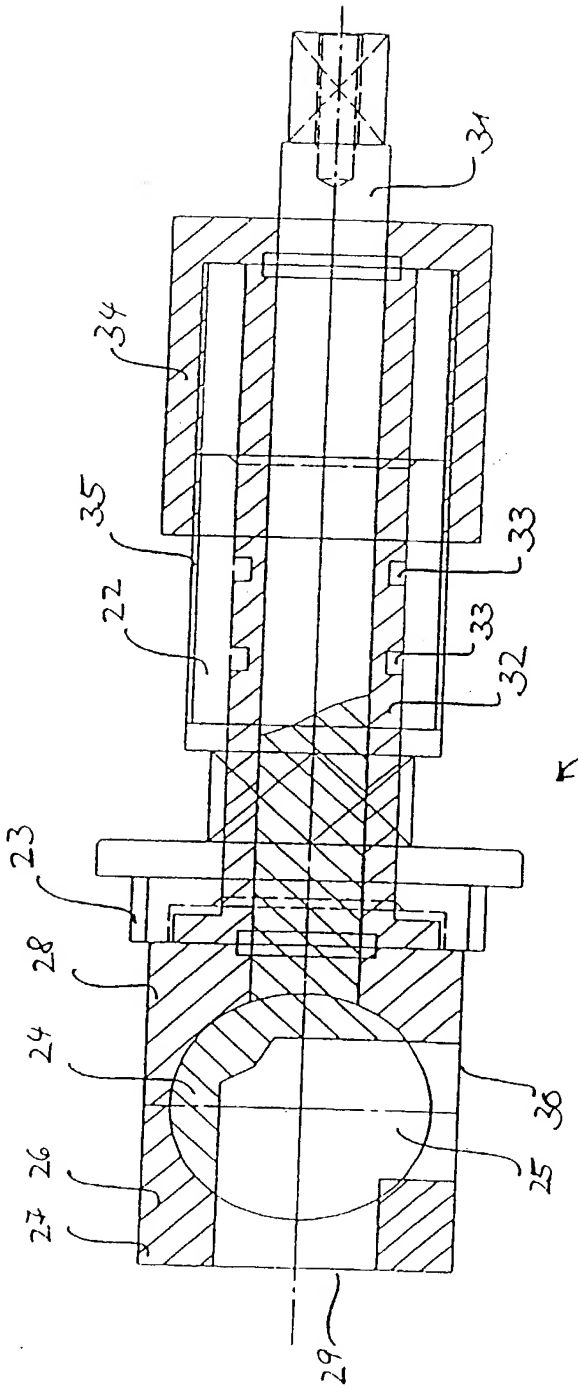

Fig. 3

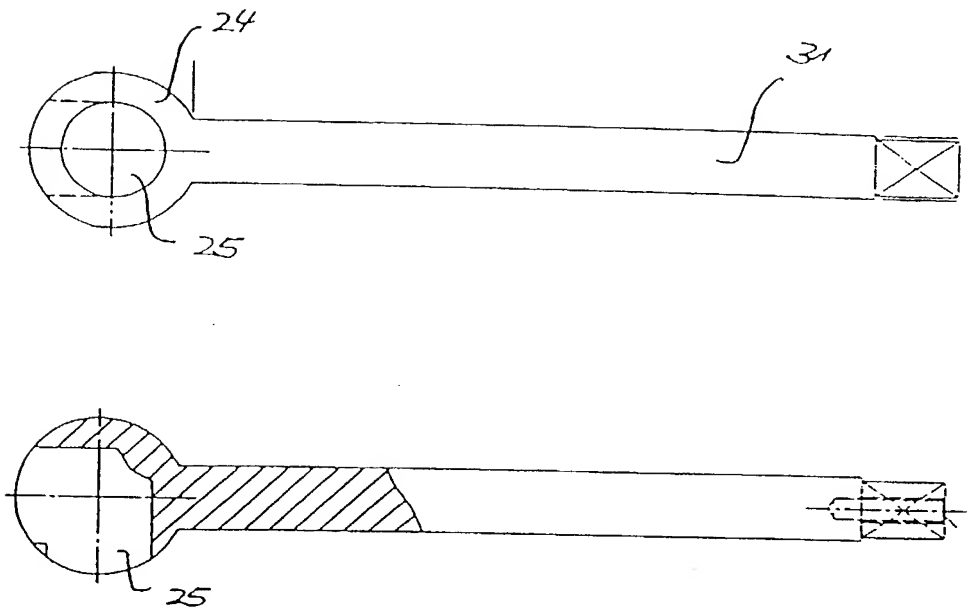

Fig. 4

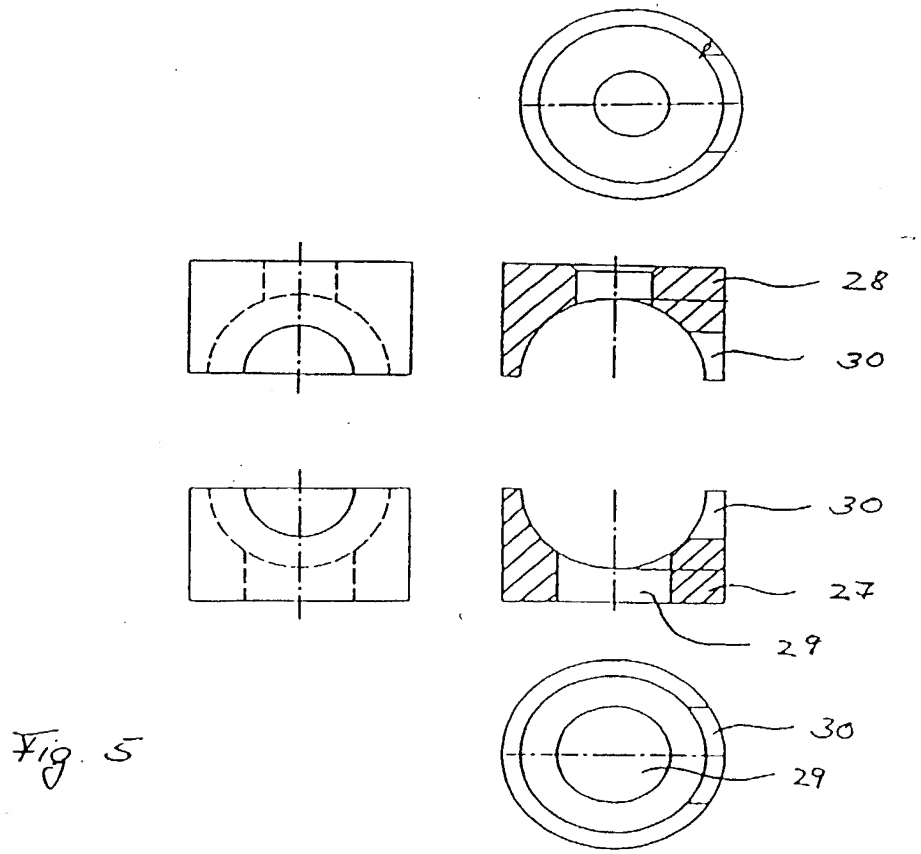

Fig. 5

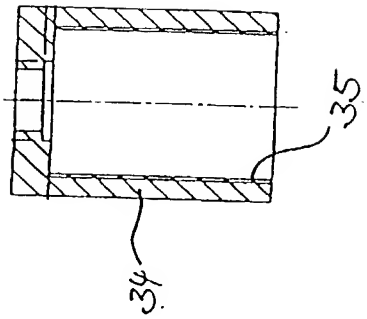

Fig. 8

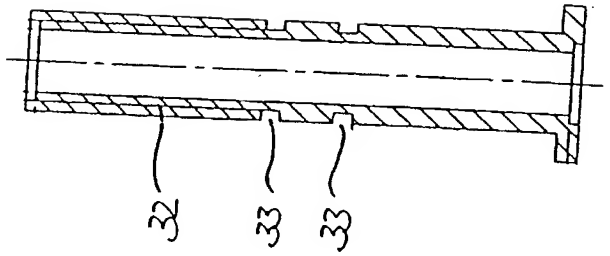

Fig. 7

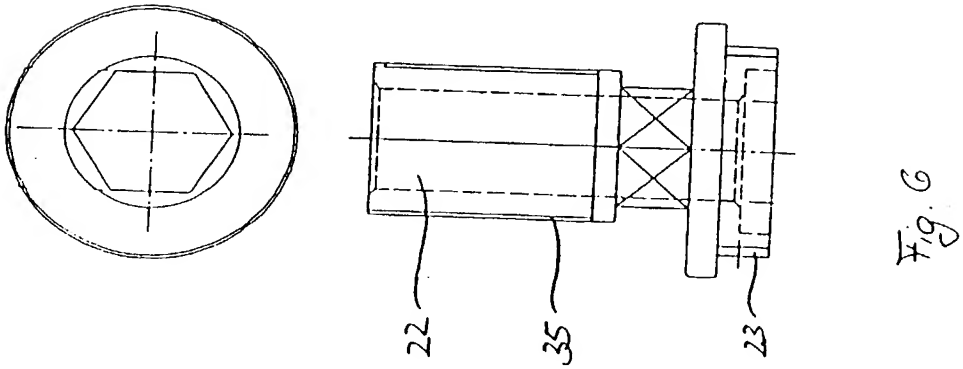

Fig. 6

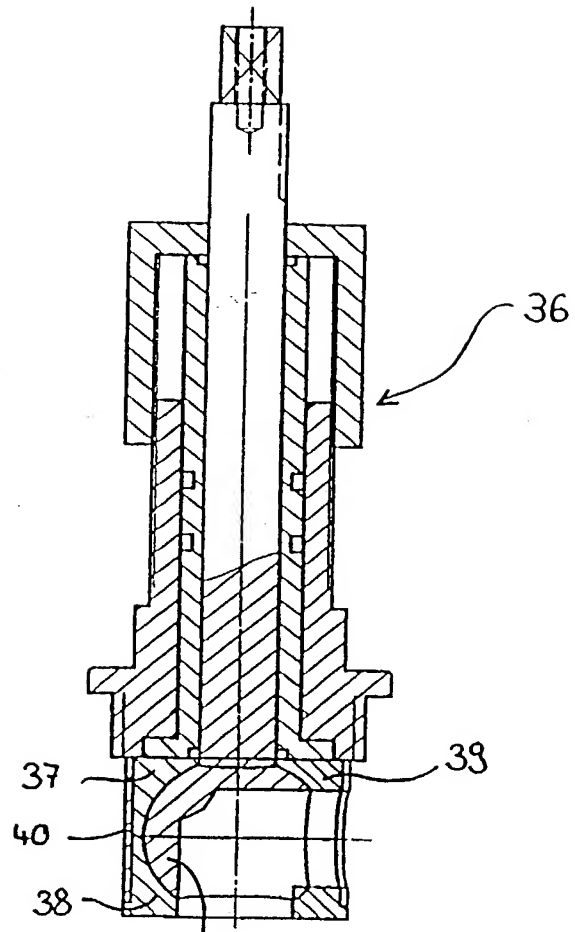

Fig. 9

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☐ Declaration Submitted with Initial Filing OR ☒ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number: 13016
First Named Inventor: BROMBACH, Frank
Application Number: 10/070646
Filing Date: 5 March 2002
Group Art Unit:
Examiner Name:

As a below named inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is south on the invention entitled:

TAP INSERT

(Title of the Invention)

the specification of which

☐ is attached hereto

or

☒ was filed on 5 March 2002 (DD/MM/YYYY) as United States Application Number or PCT International Application Number 10/070646 and was amended on _____ (DD/MM/YYYY) (if applicable).

I hereby state that I reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365 (b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (DD/MM/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
199 42 340.7	DE	06/09/1999			x
PCT/DE00/03051	PCT	05/09/2000			x

_____Additional foreign application numbers are listed on a supplemental priority data sheet attached hereto:

DECLARATION-----Utility or Design Patent Application

Direct all correspondence to: ☐ Customer Number or Bar Code Label [ ] OR ☒ Correspondence address below

Name: Orum & Roth

Address: 53 West Jackson Boulevard

City: Chicago State: IL Zip: 60604

Country: USA Telephone: 312.922.6262 Fax: 312.922.7747

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued theron.

NAME OF SOLE OR FIRST INVENTOR: ☐ A petition has been filed for this undersigned inventor

Given Name (first and middle [if any]):....,Frank,,,....... Family Name or Surname:.....BROMBACH........

Inventor's Signature:....Frank Brombach.... Date:....11. Juli 2002 ✓

Residence: City....Rheinfelden...........State:........................Country:.....Germany DEX...........Citizenship:.......German...............

Mailing Address:.....Kapfbuhlstrasse 33..............

City:....Rheinfelden.................State:........................Zip:.....79618................Country:.........Germany.............

NAME OF SECOND INVENTOR: ☐ A petition has been filed for this undersigned inventor

Given Name (first and middle [if any]):.. Family Name or Surname:...

Inventor's Signature:..Date:..

Residence: City.......................................State:........................Country:....................Citizenship:..................

Mailing Address:..

City:...State:........................Zip:..........................Country:........................

☐Additional inventors are being named on the____supplemental Additional Inventor(s) sheet(s) attached hereto.

F223(Orum & Roth)